REMARKS/ARGUMENTS

Applicants' undersigned attorney requests an interview with the Examiner after the Examiner has had an opportunity to review the amendments and arguments presented herein.

Claims 1, 12, and 17 are amended and new claims 22-24 are added herein. With entry of this amendment, claims 1, 3, 5-12, 15-18 and 20-24 will be pending.

Claims 1-3, 9-13, and 17-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,625,161 (Su et al.) in view of U.S. Patent Application Publication No. 2003/0112764 (Gaspard et al.) in view of U.S. Patent No. 5,903,735 (Kidder et al.) and in further view of U.S. Patent No. 6,731,639 (Ors et al.).

Applicants' invention is directed to a method and system for defining hardware routing paths in a network having both IP paths and MPLS paths. The IP and MPLS paths are organized, sorted, and compared in a uniform manner so that maximum hardware path resource utilization can be achieved. Claim 1, for example, includes assigning a unique path ID for each path within a path group, comparing all path IDs in each path group, and assigning a common hardware resource to groups having matching path IDs. The path ID for each path includes an IP address. Claims 1, 12, and 17 have been amended to specify that path information is received for a plurality of paths in a path group, the path group comprising both IP and MPLS paths, and that each of the IP paths is represented by an IP address and each of the MPLS paths represented by a label. The claims have been amended to clarify that the MPLS path is represented by a label but still assigned an IP address to conform to the format of the IP paths.

Su et al. disclose a system which examines a continuous stream of packets departing from a network to identify predetermined common criteria or attribute. The system then groups the packets into one or more traffic aggregates based on the common

attribute of the packet. Each traffic aggregate is assigned to a specific communication channel or link.

Su et al. do not assign a unique path ID for each path within a path group. Instead, Su et al. group packets based on a common attribute such as destination address or source and destination address and then assigns each traffic aggregate to an interface at a network device. There are typically multiple paths between a network device and a destination node. Even if packets exit the network device at the same link, they may still be forwarded over different paths within the network. Su et al. do not discuss paths within the network or assign IDs to a path, as set forth in the claims. Since there are no path IDs, there is no comparison of path IDs and no path groups.

As noted by the Examiner, Su et al. also do not disclose a method for defining hardware routing paths in a network having both IP paths and MPLS paths, or a path group that contains both IP and MPLS paths. With respect to this limitation, the Examiner cites Gaspard et al.

Gaspard et al. disclose a method for automatic discovery of logical links between network devices. As shown in Fig. 4, some IP links support both IP and MPLS forwarding. The conventional approach for a group of mixed IP and MPLS paths, as shown in Gaspard et al., is to deal with them separately. IP paths are based on next hop IP address and MPLS paths are based on MPLS encapsulation strings. The hardware paths thus contain different information in order to forward the packets onto MPLS or IP paths. In systems, such as Gaspard et al., each route requires independent hardware path resources to support IP and MPLS mixed load sharing paths.

As noted by the Examiner, Su et al. also do not disclose wherein the path ID assigned for each of IP paths comprises a unicast IP address or wherein the path ID assigned for each of the MPLS paths comprises a unique IP multicast address. With respect to these limitations, the Examiner cites Kidder et al. and Ors et al.

Kidder et al. disclose an apparatus and method for transmitting data having minimal bandwidth requirements. A path message is used to store path state in each node

along a path. The path state includes a unicast address of the previous hop node which is used to route messages hop by hop in the reverse direction. Kidder et al. do not assign a unique path ID comprising a unicast address for each path within a path group. Kidder et al. simply store a unicast address of a previous hop at a node for use in routing a message in a reverse direction.

The Ors et al. patent does not show or suggest assigning a unique IP multicast address for each MPLS path. The Ors et al. patent is directed to MPLS for multiple access segments. As the Examiner notes in the rejection, the switching node of Ors et al. assigns a multicast *label* to each MPLS path in the network. Ors et al. do not assign an IP multicast address for each MPLS path, as required by the claims. In contrast to applicants' invention, Ors et al. assign a label to each MPLS path and perform conventional packet forwarding based on label information.

With conventional systems IP paths are based on an IP address (Kidder et al.) and MPLS paths are based on an MPLS label (Ors et al.). Therefore, if paths contain both IP and MPLS paths, the hardware paths must contain different information in order to forward the packets onto MPLS or IP paths. Thus, each route requires independent hardware path resources to support IP and MPLS mixed load sharing paths. In contrast to the cited references, applicants' claimed invention assigns a unique path ID comprising a unicast IP address for an IP path, and a multicast IP address for an MPLS path. Since IP paths and MPLS paths are *both* assigned an IP address (path ID) in the claimed invention, these addresses can be compared and a common hardware resource assigned to groups having matching addresses (path IDs), wherein the groups contain both IP and MPLS paths.

Accordingly, claims 1, 12, and 17, and the claims depending therefrom, are submitted as patentable over Su et al., Gaspard et al., Kidder et al., and Ors et al.

With regard to claims 5 and 6, Ors et al. do not disclose assigning a unique IP address from an internal managed group of IDs. Ors et al. obtain an MPLS label from an MPLS database containing label routing information. The MPLS label is obtained from

the database for use in a packet to be sent over a route as broadcasted by the switching node.

With regard to claims 7 and 8, Ors et al. do not assign an IP address for each MPLS path entity. Instead, Ors et al. obtain a MPLS label, as previously discussed.

The other references cited including U.S. Patent No. 6,728,268 (Bird), do not overcome the deficiencies of the primary references discussed above.

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,

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